AUTHOR: Asnis, A.Ye. SOV 125-58-3-4/15

TITLE: Vibration Strength in the Weld Joints of "MSt.3"-Steel, Containing up to 0.15% As (Vibratsionnaya prochnost' svarnykh soyedineniy iz stali MSt.3, soderzhashchey do 0.15% As)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 3, pp 24-34 (USSR)

ABSTRACT: The described experiments were performed by the Electric Welding Institute imeni Ye.O. Paton together with the "Azovstal'" Plant, on various specimens of rimming and killed open hearth steel with different As-contents. The purpose of the experiments was to reveal the possible causes of the reduced vibration strength of steel. The technology of experiments is described in detail, including determination of the cyclic toughness of As-containing steel with the aid of devices designed by G.P. Alekseyev, determination of the causes of non-homogenous micro-structures in As-containing steel, spectral analyses with spark discharge performed by A.S. Demyanchuk, investigation of the effect of arsenic on the distribution of sulfur and phosphor in weld joints with the aid of S^{35} and P^{32} isotopes performed jointly with L.A. Pozdnyak. Results of the tests are given in tables and micro-photographs. The

Card 1/3

Vibration Strength in the Weld Joints of "MSt.3"-Steel, Containing up to 0.15% As

following conclusions were made: 1) no negative effect of arsenic on small cylindric specimens of rimming and killed steels, type MSt.3, was revealed; 2) endurance limits of MSt.3 steels of 0.12% As-content are up to 10% lower than those of other steels; 3) the vibration strength of weld girders of non-arsenic steels is higher than that of "Azovstal" steels; 4) a weld girder of 0.15% As-containing steel, but with low carbon, sulfur and phosphor content, has a higher vibration resistance; 5) non-arsenic steel has a higher relative cyclic toughness over As-containing steel; 6) the supposed non-homogeneity of the microstructure in As-containing steel was confirmed. The same non-homogeneity was revealed in zones adjacent to the weld joints; 7) the arsenic content of rimming steel in the fusion zone is two or three times higher than in the initial concentration since arsenic increases segregation of sulfur and phosphor in the fusion zone. A conference at the Azovstal Plant dealt with the described results and decided to ensure vibration strength of weld joints of MSt.3 steel containing up to 0.15% As, (practically the same as that of MSt.3 steel

Card 2/3

Vibration Strength in the Weld Joints of "MSt.3"-Steel, Containing up to 0.15% As

with no As content), by reducing the carbon, sulfur and phosphor content in As-containing steel as follows: not over 0.20% C, 0.04% S, and 0.04% P.
The article contains 6 tables, 1 figure, 1 graph, 2 photos, 9 microphotographs, and 14 references, 12 of which are Soviet, 1 English and 1 German.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye.O. Patona AN USSR (Electric Welding Institute imeni Ye.O. Paton, AS UkrSSR, Bearer of the Labor Order of the Red Banner)

SUBMITTED: October 27, 1957

1. Steel--Welding 2. Steel--Mechanical properties 3. Steel --Test methods 4. Steel--Spectrographic analysis 5. Arsenic --Metallurgical effects

Card 3/3

ASHIS, A.E., kand. tekhn. nauk; GUTMAN, L.M., kand. tekhn. nauk, (g. Kiyev).

New welding methods used in repairing rolling stock. Zhel. dor. transp. 40 no.12:74-75 D '58. (MIRA 12:3)
(Railroads--Rolling stock--Welding)

ASNIS, A.Ye., kand.tekhn.nauk

Investigating high-strength steels to be used in welded railroad cars. Trudy TSNII MPS no.164:163-193 '58. (MIRA 12:2)
(Steel, Structural--Metallography)

BLITSHTEYN, Aleksandr Zinov'yevich; PATON, B.Ye., otv.red.; ASNIS, A.Ye., red.; KAZIMIROV, A.A., red.; MEDOVAR, B.I., red.; PODGAYETSKIY, V.V., red.; MAYEVSKIY, V.V., inzh., red.

[Electric plug and stud welding] Svarka elektrozaklepkami, privarka shpilek i shtiftov. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 45 p. (MIRA 13:1)
(Electric welding) (Rivets and riveting)

ASNIS, Arkadiy Yefimovich; LATASH, Yuriy Vadimovich; MEDOVAR, B.I., kand.tekhn.nauk, red.vypuska; PATON, B.Ye., otv.red.; KASIMIROV, A.A., red.; PODGAYETSKIY, V.V., red.

[Cast iron welding] Svarka chuguna. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit.lit-ry, 1959. 62 p. (MIRA 13:5)
(Cast iron--Welding)

ZARUBA, Igor' Ivanovich; PATON, B.Ye., otv.red.; ASNIS, A.Ye., red.; KAZIMIROV, A.A., red.; MEDOVAR, B.I., red.; PODGAYETSKIY, V.V., red.; DUDKO, D.A., kand.tekhn.nauk, red.vypuska; MAYEVSKIY, V.V., red.

[Automatic and semiautomatic welding of sheet steel] Avtomaticheskaia i poluavtomaticheskaia svarka tonkolistovoi stali. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 62 p. (MIRA 12:11)
(Sheet steel--Welding) (Electric welding)

PHASE I BOOK EXPLOITATION SOV/4220

Asnis, Arkadiy Yefimovich, and Yuriy Vadimovich Latash

Svarka chuguna (Welding of Cast Iron) Moscow, Mashgiz, 1959. 63 p. (Series: Biblioteka svarshchika), 10,000 copies printed.

Editorial Board: A. Ye. Asnis, A.A. Kazimirov, B.I. Medovar, Candidate of Technical Sciences, B. Ye. Paton (Resp. Ed.), and V.V. Podgayetskiy; Ed. of this book: B.I. Medovar, Chief Ed. (Southern Division, Mashgiz): V.K. Serdyuk, Engineer; Ed. of Publishing House: V.V. Mayevskiy, Engineer.

PURPOSE: This booklet is intended for welders.

COVERAGE: The book deals with gas and electric-arc welding of cast iron. Existing methods of electric-arc welding without preheating are analyzed. Materials used in welding are described, and some practical data on welding technique are given. Examples of the proper execution of some welding jobs are provided. No personalities are mentioned. There are 9 references, all Soviet.

Card 1/3

ASNIS, A. Ye.

TARKHOV, Nikolay Alekseyevich; RAKHMANOV, Aleksandr Dmitriyevich; PATON, B.Ye., otv.red.; ASNIS, A.Ye., kand.tekhn.nauk, red. vypuska; KAZIMIROV, A.A., red.; MEDOVAR, B.I., red.; PODGAYETSKIY, V.V., red.; MAYEVSKIY, V.V., red.

[Electrodes for arc welding and hard facing] Elektrody dlia dugovoi svarki i naplavki. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 63 p. (MIRA 13:2)
(Electric welding--Equipment and supplies)

KASATKIN, Boris Sergeyevich; MANDEL'BERG, Simon L'vovich; ASNIS, A.Ye., kand.tekhn.nauk, red.vypuska; PATON, B.Ye., otv.red.; KAZIMIROV, A.A., red.; MEDOVAR, B.I., red.; PODGAYETSKIY, V.V., red.; MAYEVSKIY, V.V., inzh., red.izd-va

[Electric arc welding of low-alloy steels] Elektrodugovaia svarka nizkolegirovannykh stalei. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 68 p. (MIRA 13:3)
(Steel alloys--Welding)

MEDOVAR, Boris Izrailevich; PATON, B.Ye., akademik, otv.red.; ASNIS, A.Ye., red.; KAZIMIROV, A.A., red.; PODGAYETSKIY, V.V., red.; MAYEVSKIY, V.V., inzh., red.

[Electric arc welding under flux] Avtomaticheskaia elektrodugovaia svarka pod fliusom. Kiev, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 73 p. (MIRA 12:11)

1. AN USSR (for Paton).
(Electric welding)

STERENBOGEN, Yuriy Aleksandrovich; PATON, B.Ye., otv.red.; ASNIS, A.Ye., red.; KAZIMIROV, A.A., red.; MEDOVAR, B.I., red.; PODGAYETSKIY, V.V., red.; MANDEL'BERG, S.L., inzh., red.vypuska; SERDYUK, V.K., inzh., red.

[Electric slag welding] Elektroshlakovaia svarka. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 81 p. (MIRA 13:4)

(Electric welding)

FRUMIN, Isidor Il'ich; PATON, B.Ye., otv.red.; PODGAYETSKIY, V.V., kand. tekhn.nauk, red.vypuska; ASNIS, A.Ye., red.; KAZIMIROV, A.A., red.; MEDOVAR, B.I., red.; MAYEVSKIY, V.V., red.

[Automatic built-up welding under flux] Avtomaticheskaia naplavka pod fliusom. Moskva, Gos.nauchno-tekhn.izd-vo mashinostr.lit-ry, 1959. 109 p. (MIRA 12:10)
(Electric welding) (Hard facing)

ASNIS, A. Ye.

25(1) PHASE I BOOK EXPLOITATION SOV/3421

Akademiya nauk USSR, Kiyev, Institut elektrosvarki imeni akademika Ye.O. Patona

Vnedreniye novykh sposobov svarki v promyshlennost', vyp. 2 (Introduction of New Welding Methods in Industry; Collection of Articles, No. 2) Kiyev, Gos. izd-vo tekhn. lit-ry Ukrainskoy SSR, 1959. 194 p. Errata slip inserted. 3,000 copies printed.

Ed.: V. Garkusha; Tech. Ed.: S. Matusevich.

PURPOSE: This book is intended for workers in the welding industry.

COVERAGE: The book contains a discussion of welding techniques and problems by groups of scientists and welders. Much attention is given to problems in the application of new methods of mechanized welding and electro-slag welding. This is the second collection of articles under the same title prepared and published by the Institut elektrosvarki imeni Ye.O. Patona (Institute of Electric Welding imeni Ye.O. Paton). The preface is written by B.Ye. Paton, Academician of the Ukrainian Academy of Sciences and Winner of the Lenin Prize. There are no references.

AVAILABLE: Library of Congress (TS 227.A359)

VK/fal
5-4-60

Card 7/7

18(5,7)
AUTHOR: Aris, A.Ye., Lashkevich, R.I.

TITLE: Some Measures on How to Prevent Formation of Crystallization Cracks at the Ends of Butt-Welds

PERIODICAL: Avtomaticheskaya svarka, 1959, Nr 7, pp 83-86 (USSR)

ABSTRACT: In order to improve the quality of welded joints, both ends of welds are as a rule brought out on special technological metal planks. However, even in this case formation of longitudinal crystallization cracks cannot be sometimes avoided. This formation is not connected with the crater, as the latter lies on the plank beyond the weld. To prevent the appearance of cracks, it was at one time recommended to weld the planks with penetration at root to the base sheets. But, even this method does not always answer the purpose. To meet the problem of elimination of cracks, the author suggests that the base sheets be fastened one to another in such a manner that disjoining of their edges during the shrinkage, as a consequence of onesided heating of the sheets along their edges, will be prevented.

Card 1/2

Some Measures on How to Prevent Formation of Crystallization Cracks at the Ends of Butt-Welds

On condition of such a fastening, the technological plank does not have to be welded to the sheet edges, but can be simply placed against them, to serve only for bringing out the crater and the weld end. There are 1 table, 6 photographs and 3 references, 2 of which are Soviet and 1 American.

ASSOCIATION: Ordena trudovogo krasnogo znameni institut elektrosvarki imeni Ye.O. Patona AN USSR (Order of the Red Banner of Labor Institute of Electric Welding, AS UkrSSR, imeni Ye.O. Paton)

18(5) SOV/125-59-9-3/16

AUTHOR: Asnis, A.Ye., Candidate of Technical Sciences

TITLE: Some Technological Means for Increase of Vibration Strength of Welded Joints

PERIODICAL: Avtomaticheskaya svarka, 1959, Nr 9, pp 17-25 (USSR)

ABSTRACT: At the zones where welds are fused with the base metal, diffusion of carbon towards the weld metal takes place. As a result, a certain zone of the base metal adjacent to the weld becomes partly decarburized. Structure and other properties of this zone may exert a large influence on the strength of welded joints. This appearance was at one time disclosed by M.Yu. Ametov. The author of this article considers the best methods of increasing the vibration strength of welded joints. On the basis of research, he states: 1) In order to increase the vibration strength, a decarburized zone of metal having higher plastic properties must be created; 2) The electrode wire used for automatic welding should contain more manganese (make Sv-10G2 is recommended);

Card 1/3

Some Technological Means for Increase of Vibration Strength of Welded Joints

for hand welding, electrodes with cores made of the same kind of wire are to be applied; 3) Welding under powder flux ensures a considerable migration of carbide-forming elements into the weld; as a result, the vibration strength of welded joints increases; 4) Welding under flux AN-60 (43.4% SiO_2, 39% MnO, 6.5% CaO, 6.2% CaF_2, 0.6% MgO) provides better results as compared to the flux AN-348A (See Table 4); 5) Removing of scale, welding with an increased arc voltage, and application of split electrodes raise the vibration strength of welded joints. There are 3 graphs, 4 tables, 4 photographs and 12 references, 8 of which are Soviet, 3 English and 1 German.

ASSOCIATION: Ordena trudovogo krasnogo znameni institut elektrosvarki imeni Ye.O.Patona AN USSR (Order of the Red Banner of Labor Institute of Electric Welding imeni Ye.O. Paton, AS Ukr SSR).

18 (2, 3, 5)

SOV/125-59-11-3/22

AUTHORS: Asnis, A.Ye., Rabkin, D.M., Candidates of Technical Sciences, and Savich, I.M., Engineer

TITLE: Impact Resistance of Welded Joints from Aluminum Alloy AMg6

PERIODICAL: Avtomaticheskaya svarka, 1959, Nr 11, pp 20-25 (USSR)

ABSTRACT: During last years, the application of aluminum-magnesium alloys for welded structures has been considerably increased. Such alloys as AMg6 (with 6% Mg) have a tensile strength of 30-32 kg/mm^2 and can in many structures supersede steel. However, the impact resistance properties of these alloys have not yet been sufficiently studied. This article deals with the problem of determining these properties. Tests were carried out on both alloy AMg6 and low-alloy steel; the results of tests for toughness of AMg6 are given in Table 1; curves giving the toughness of both materials depending on the temperature are shown in Fig 1. Further on, the authors give data on resistance of test pieces against

Card 1/3

Impact Resistance of Welded Joints from Aluminum Alloy AMg6

single impacts (Table 2). Test pieces made from alloy AMg6, 20 mm in thickness, had the form shown in Fig 2. For the sake of comparison, pieces of low-carbon, low-alloysteel MSt.3kp, 16 mm in thickness, and of steel 15GF, 12 mm in thickness, were tested. Testing resistance against repeated impacts was performed on test pieces made also from both AMg6 alloy and low-carbon steel (Fig 4); results are given in Table 3. On the basis of performed tests, the following conclusions are drawn: 1) There is, practically, no difference between the toughness of the weld material and that of the base metal AMg6; 2) Resistance against single impacts at temperatures +10°, -20°, and -60°C is, practically, the same; 3) At a temperature of -20° and -60°C, the number of strokes required to break a test piece made from alloy AMg6 is greater than is the case with low-carbon steel MSt.3kp and low-alloy steel 15GF; 4) When repeated impact force is applied, the pieces made of AMg6 alloy possess a higher durabili-

Card 2/3

SOV/135-12-2-8/14

13(5)

AUTHOR: Asnis, A.Ye., and Bayda, P.F.

TITLE: Use of Gas-Cutting Machines with Copying Mechanisms for Welding Complex Joints (Ispol'zovaniye gazorezatel'nykh mashin s kopirnymi mekhanizmami dlya svarki shvov slozhnogo kontura)

PERIODICAL: Avtomaticheskaya svarka, 1959, Vol 12, Nr 2, pp 66-70 (USSR)

ABSTRACT: Until the production of photoelectronic copying welding machines is organized, it is expedient to use the existing designs for gas-cutting machines produced by VNII Avtogen. In production conditions the static hinged machine tool type ASSh-2 for contour cutting from a pattern has proved itself. The Paton Institute has developed the technology of flux-welding complex contour parts on the ASSh-2 machine. A diagram of the main part of the installation is shown. Guidance of the machine is performed by a shield mounted on an external hinged frame, which carried the rheostat, ammeter and voltmeter.

Card 1/3

Use of Gas-Cutting Machines with Copying Mechanisms for Welding Complex Joints

Using hinged cutting machine tools ASSh-2 or ASSh-1 it is possible to weld angled and junction seams on parts 1500 x 750 mm or 1000 x 1000 mm. Speed of welding from 6-40 m/hr. The Institute has also developed techniques for welding complex contour parts by using a vertical electrode. Experiments have shown that the pumice-like flux AN - 60 (42.5 - 46.5% SiO_2, 37.0 - 41.0% MnO, 5.0 - 7.0% CaO, 5.5 - 7.5% CaF_2, up to 3.0% R_2O_3, up to 1% MgO, up to 1.5% FeO, up to 0.15% S, up to 0.15% P) has some advantages over AN - 348A because it ensures a smoother outline of the seams. The conclusions of the article are that gas-cutting machines for complex contour seams are advisable. Secondly that when using the ASSh-2 installation, smoother outlines of the seam can be obtained by using flux AN - 60 which is smelted in electrical furnaces. Welding is carried out using a vertical electrode. Thirdly the new technique has been proven both in laboratory and production conditions. The use of gas-cutting machines for complex contour welds is con-

Use of Gas-Cutting Machines with Copying Mechanisms for Welding Complex Joints

siderably simpler and more economical than with other copying mechanism installations now in use. There are 5 diagrams.

ASSOCIATION: Ordena trudovogo krasnogo znameni institut elektrosvarki imeni Ye.O.Patona AN USSR (Order of the Red Banner of Labor Institute of Electric Welding imeni Ye.O.Paton of the AS UkrSSR)

SUBMITTED: December 17, 1958

ZHEMCHUZHNIKOV, Georgiy Vladimirovich; PATON, B.Ye., otv.red.; ASNIS, A.Ye., red.; KAZIMIROV, A.A., red.; MEDOVAR, B.I., red.; PODGAYETSKIY, V.V., red.; MANDEL'BERG, S.L., kand.tekhn.nauk, red. MAYEVSKIY, V.V., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn.red.

[Welding of metal structures] Svarka metallokonstruktsii. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 73 p. (MIRA 14:1)

(Structural frames--Welding)

POTAP'YEVSKIY, Arkadiy Grigor'yevich; PATON, B.Ye., otv.red.; ASNIS, A.Ye., red.; KAZIMIROV, A.A., red.; MEDOVAR, B.I., red.; PODGAYETSKIY, V.V., red.; ZARUBA, I.I., kand.tekhn.nauk, red.vypuska; MAYEVSKIY, V.V., inzh., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn.red.

[Welding in a protective atmosphere] Svarka v zashchitnykh gazakh. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 97 p. (MIRA 13:9)

(Welding) (Protective atmospheres)

S/125/60/000/008/002/012
A161/A029

AUTHORS: Asnis, A.Ye.; Gutman, L.M.

TITLE: Welding St. 5, 45 and 40Kh Steel Joints Without Heat Treatment

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 8, pp. 14 - 25

TEXT: It has been proven in experiments with the high-strength steel grades "Ст. 5" (St. 5), "45" and "40Х" (40Kh) that joints welded with preheat up to 300°C, without subsequent heat treatment, have practically the same metal structure, mechanical properties an hardness as after annealing at 630°C. With St. 5, having a lower carbon content, preheat to 150 - 200°C was sufficient. The chemical composition of the three steel grades and "Св-08" (Sv-08) welding wire used is given (Table 1):

Steel	Thickness in mm	Element Content in % C	Mn	Si	S	P	Cr
St. 5	40 and 20	0.31	0.62	0.16	0.026	0.034	-
45	40	0.47	0.72	0.28	0.019	0.025	-
45	20	0.51	0.65	0.28	0.027	0.028	-
45	12	0.47	0.71	0.28	0.038	0.020	-

Card 1/2

S/125/60/000/008/002/012
A161/A029

Welding St.5, 45 and 40Kh Steel Joints Without Heat Treatment

40Kh	40, 20 and 12	0.40	0.62	0.28	0.035	0.017	0.94
Sv-08 wire	ø 5	0.11	0.48	0.01	0.052	0.017	-
Sv-08 wire	ø 2	0.06	0.52	0.02	0.037	0.019	-

Microphotographs of weld metal obtained are included. Shafts of internal combustion engines and steam engines resurfaced with preheat only are in operation since several years without a single case of breakdown. Several heavy hydraulic press frames of steel with higher C content have been successfully repaired. A railroad car building plant is using the new simplified technology. A photo (Fig. 11) shows a railroad car chassis prepared for welding, with induction heaters installed for local preheat by commercial frequency current. It is concluded that welding with local preheat is to be preferred to welding with subsequent annealing, for local preheat considerably raises the resistance to cracking in weld metal and in the heat-affected zone. There are 11 figures, 3 tables and 10 references: 8 Soviet, 1 French and 1 English.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O.Patona AN UkrSSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye.O. Paton of the Academy of Sciences of the UkrSSR)

SUBMITTED: March 10, 1960

Card 2/2

S/125/60/000/012/002/014
A161/A030

1.2300

AUTHORS: Asnins, A.Ye.; Kuchuk-Yatsenko, S.I.

TITLE: Static and Vibration Resistance of Joints Welded From Large Sections by Resistance-Welding

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 12. pp. 14 - 41

TEXT: The resistance-welding process was not previously used for welding beams for jobs where reliability of structure is of paramount importance. There were no large welding machines of this kind, the quality of resistance-welded joints made in existing machines was not constant, and the necessary removal of surplus weld metal and burrs was difficult. The Electric Welding Institute imeni Ye.O. Paton has developed a machine enabling welding butt joints to be made with maximum 30,000 mm^2 cross section area, welding with continuous fusion, and more stable and even heating. Flat and double-T specimens with a height of up to 200 mm have been welded in the "K-135" welder and tested for static strength and vibration resistance. Special test machines of the Electric Welding Institute design were used. The article includes no description of the welding machine. The welding test was chosen so as to reproduce the most unfavorable welding conditions

Card 1/3

89711

S/125/60/000/012/002/014
A161/A030

Static and Vibration Resistance of Joints Welded From Large Sections by Resistance-Welding

(which would probably occur in everyday use) with maximum heat: fusion time 120 sec; allowance for fusion 25 mm; initial fusion rate 0.25 mm/sec; final fusion rate 1.5 mm/sec; idle-run current 6.6 volt; upsetting 6 and 12 mm. The upsetting was limited by a special tracing hydraulic drive enabling the desired deformation on the butts to be obtained regardless of the pressure variation in oil in the hydraulic system and the dimensions of heated zone. Notch impact strength depended very much on the magnitude of upsetting - it was $\frac{9.8 - 15.1}{11.8}$ kgm/cm^2 at 6 mm upsetting, and $\frac{6.6 - 11.3}{8.3}$ kgm/cm^2 at 11 mm. It was concluded that the static strength and also vibration resistance of joints in low-carbon steel welded by the resistance process was not lower than that of joints made by submerged arc. The endurance limit of double-T beams joined by resistance welding with a slight weld reinforcement scarcely differed from the endurance limit of integral beams. The transition metal structure between weld reinforcement and base metal was fine-grained and homogeneous. The resistance welding process with continuous fusion is recommended for joining sheet and merchant bar steel, and it is recommended not to remove the surplus weld metal to

Card 2/3

89711

S/125/60/000/012/002/014
A161/A030

Static and Vibration Resistance of Joints Welded From Large Sections by Resistance-Welding

reduce stress concentration. There are 9 figures and 3 Soviet references.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" imeni Ye.O. Paton of the Academy of Sciences of the UkrSSR)

SUBMITTED: May 5, 1960

Card 3/3

S/125/60/000/011/016/016
A161/A133

AUTHORS: Rozenberg, O.O., Asnis, A.Ye., Yakimishin, G.S.

TITLE: Electroslag welding to repair locomotive frames

PERIODICAL: Avtomaticheskaya svarka, no. 11, 1960, 86-88

TEXT: The described techniques have been used for two years at the Izyumskiy parovozoremontnyy zavod (Izyum Locomotive Repair Plant), and the welds produced by the electroslag process are more dependable than those of manual welding. The method has been developed by Institut elektrosvarki im.Ye.O.Patona AN USSR (Electric Welding Institute im.Ye.O.Paton AS UkrSSR) and is used for the repair of beam frames 125 mm thick of the "ФД" ("FD") locomotive. The frame parts are fixed after oxygen cutting with a 30-34 mm gap, red copper linings with 4-5 mm walls, cooled by running water, are placed on both sides of the frame, and copper pipes are inserted into bolt holes which might be near the joint to prevent them from being welded. A plate ("pocket") with a 50-60 mm deep cut is welded to the bottom side of the frame beams, and rising

Card 1/3

Electroslag welding to repair locomotive frames

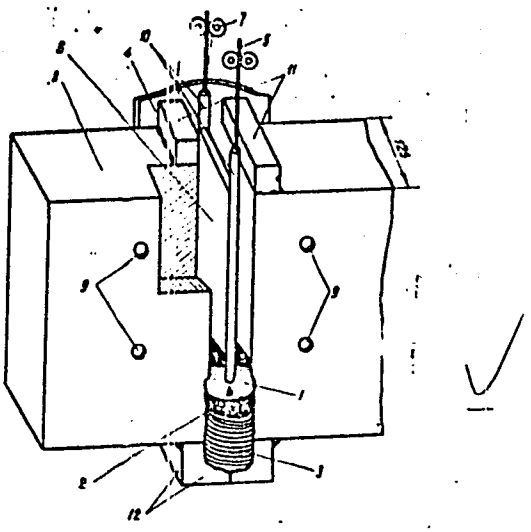
plates 80-100 mm high are installed on the top (the plates and the "pocket" are removed by oxygen cutter after welding). The welding equipment consists of the feed mechanism of a ПШ-5 (PSh-5) or ПШ-54 (PSh-54) semi-automatic welder, and a ТШС-1000-3 (TShS-1000-3) or a ТСД-1000-3 (TSD-1000-3) welding transformer modified for operation with rigid external characteristic. The "consumable nozzle" is a plate of Ст.3 (St.3) steel 90 mm wide and 12-15 mm thick with a steel pipe of 5-6 mm internal diameter and 2-3 mm wall attached to the edges on both sides. The pipes are designed for guiding the 3 mm electrode wire. The wire is a standard Св-10Г2 (Sv-10G2) grade (GOST 2246-60 standard); the flux АН-8 (AN-8). Wire feed speed is 78 m/h; the welding current has 1,200-1,400 amp and 40-44 volts. The mechanical properties of the weld metal are practically the same as of the base metal. Electroslag welding takes only a third of the time than manual repair welding. There is 1 figure.

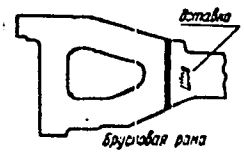
S/125/60/000/011/016/016
A161/A133

Electroslag welding to repair locomotive frames

Figure:

Schematic diagram of electroslag welding by consumable nozzle:
1 - Slag pool; 2 - Metal pool; 3 - Welding seam; 4 - Copper lining; 5 - Welding wire; 6 - "Consumable nozzle"; 7 - Feed rollers; 8 - Frame plates; 9 - Bolt holes in the frame; 10 - Wire guide pipes; 11 - Rising plates; 12 - "Pocket"





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frame

Card 3/3

ASNIS, A. YE.

PHASE I BOOK EXPLOITATION SOV/5975

International Institute of Welding

XII kongress Mezhdunarodnogo instituta svarki, 29 iyunya - 5 iyulya 1959 v g. Opatii (Twelfth Annual Assembly of the International Institute of Welding, Opatija, June 29 - July 5, 1959) Moscow, Mashgiz, 1961. 359 p. 3000 copies printed.

Sponsoring Agency: Natsional'nyy komitet SSSR po svarke.

Ed. (Title page): G. A. Maslov, Docent; Translated from English, French, and Serbo-Croatian by N. S. Aborenkova, K. N. Belyayev, E. P. Bogacheva, L. A. Borisova, K. V. Zvegintseva, V. S. Minavicher, and M. M. Shelechnik; Managing Ed. for Literature on the Hot-Working of Metals: S. Ya. Golovin, Engineer.

PURPOSE: This collection of articles is intended for welding specialists and the technical personnel of various production and repair shops.

Card 1/

Twelfth Annual Assembly (Cont.) SOV/5975

COVERAGE: The collection contains abridged reports presented and discussed at the Twelfth Annual Assembly of the International Institute of Welding. Reports deal with problems of welding and related processes used in repair work, repair techniques, and the problems arising in connection with the nature of the base and filler materials. Examples of repairing various parts are given, and the organization of repair operations in workshops and under field conditions is discussed. Economic aspects of welding and related processes as used in repair work are analyzed. No personalities are mentioned. There are no references.

TABLE OF CONTENTS: [Only Soviet and Soviet-bloc reports are given here]

ASNIS, A.Ye.

Equipment needed for the welding and cutting of metals with methane and a propane-butane mixture in replacement of acetylene. Avtom. svar. 14 no.5:93 My '61. (MIRA 14:5)
(Gas welding and cutting--Equipment and supplies)

GAYEVOY, T.V.; KUZIN, A.I.; ASNIS, A.Ye.; FED'KO, I.V.

Use of electric slag welding for the repair of locomotive plate frames. Avtom. svar. 14 no.11:42-46 N '61. (MIRA 14:10)

1. Poltavskiy parovozoremontnyy zavod (for Gayevoy, Kuzin).
2. Ordena Trudovogo Krasnogo Znameni institut elektrosvarki imeni Ye.O. Patona AN USSR.

(Locomotives—Maintenance and repair)
(Electric welding)

Asnis, A Ye.

L 11881-63 EWP(k)/EWP(q)/EWT(m)/BDS AFFTC/ASD Pf-4 JD/HM

PHASE I BOOK EXPLOITATION SOV/6330

Paton, B. Ye., Lenin Prize Winner, Academician, ed.

Tekhnologiya elektricheskoy svarki plavleniyem (Technology of Electric Fusion Welding) Moskva, Mashgiz (Southern Dept.), 1962. 663 p. Errata slip inserted. 25,000 copies printed.

Ed.: M. S. Soroka; Tech. Ed.: M. S. Gornostaypol'skaya; Chief Ed.: V. K. Serdyuk, Engineer.

Review: Department of Welding, Leningrad Polytechnic Institute; and Department of Welding, Moscow Higher Technical Institute imeni Bauman.

PURPOSE: This handbook is intended for students of schools of higher education who specialize in welding. It may also be used by engineering personnel of scientific research organizations and plants.

Card 1/17

L 11881-63
Technology of Electric Fusion (Cont.) SOV/6330

COVERAGE: The book reviews the basic principles of the technology of electric fusion welding of various metals and their alloys. Classification of welding processes and comparative characteristics of mechanized and manual welding methods are presented. Weldability problems and causes of defects in welded joints are discussed. Information on materials, equipment, and conditions of welding and surfacing of various metals, alloys, and structures is given. Brief information on the use of heat sources employed in special types of welding and on safety precautions is also given. The Introduction, Chapter I (except the part headed "Arc Welding" in section 1), Chapter II (except the part headed "Cold Cracks" in section 5, the part on methods of determining resistance to brittleness in sections 6, 7, 8, 9, 11, and 14) are the work of S. A. Ostrovskaya, Candidate of Technical Sciences. The part entitled "Welding Arc" in paragraph 1 was written by Ostrovskaya in cooperation with D. M. Rabkin, Candidate of Technical Sciences. A. M. Makara, Candidate of Technical Sciences, wrote the parts entitled "Cold Cracks" in

Card 2/17

section 5 and 20. The part on methods of determining the temperature of transition to brittle behavior in section 6 is the work of V. V. Shevernitskiy, Candidate of Technical Sciences. Section 10 was written by A. Ye. Asnis, Candidate of Technical Sciences. I. K. Pokhodnya, Candidate of Technical Sciences, wrote section 12 and Chapter IX, while section 13 and Chapter XI were written by V. V. Podgayetskiy, Candidate of Technical Sciences. Chapter V is the joint effort of B. Ye. Paton and M. G. Belfer, Engineer. S. L. Mandel'berg, Candidate of Technical Sciences, is author of Chapter VI and section 19. Section 21 was written by B. I. Medovar, Doctor of Technical Sciences, and section 22 by Rabkin. Section 23 is the work of Yu. V. Latash, Candidate of Technical Sciences, while Chapter X was written by I. V. Kirdo, Candidate of Technical Sciences. The authors thank Doctors of Technical Sciences N. O. Okerblom and G. A. Nikolayev, respective heads of the reviewing departments, for their valuable comments. There are 31 references, all Soviet.

ASNIS, Ardadiy Yefimovich; DRAYGOR, D.A., doktor tekhn. nauk, retsenzent; SOROKA, M.S., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn. red.

[Dynamic strength of weld joints in low-carbon and low-alloy steel] Dinamicheskaia prochnost' svarnykh soedinenii iz malouglerodistoi i nizkolegirovannykh stalei. Moskva, Mashgiz, 1962. 170 p. (MIRA 15:4)
(Steel—Welding) (Welding—Testing)

ASNIS, A. Ye.

Effect of the composition of electrode coatings on the impact strength of welded joints. Avtom. svar. 15 no.11:94-95 N '62. (MIRA 15:10)

(Electric welding—Equipment and supplies)

ASNIS, A.Ye.; GUTMAN, L.M.

Reconditioning track lugs with one-sided wear. Avtom. svar. 15 no.12:9-15 D '62. (MIRA 16:2)

1. Ordena Trudovogo Krasnogo Znameni institut elektrosvarki imeni Ye.O. Patona AN UkrSSR.
(Crawler tractors—Maintenance and repair)

ASNIS, A.Ye.

Remarks on the All-Union State Standard 9467-60 "Metal electrodes for arc welding of structural and heat-resistant steel." Avtom. svar. 17 no.3:78-81 Mr '64. (MIRA 17:11)

1. Institut elektrosvarki im. Ye.O. Patona, AN UkrSSR.

GAPCHENKO, Mikhail Nikolayevich; ASNIS, A.Ye., doktor tekhn. nauk, retsenzent; SINGOYEVSKIY, K.V., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn. red.

[Brittle fracture of welded joints and constructions] Khrupkoe razrushenie svarnykh soedinenii i konstruktsii. Moskva, Mashgiz, 1963. 178 p. (MIRA 16:7)
(Metals--Brittleness) (Welding) (Hard facing)

GAYEVOY, T.V.; KUZIN, A.I.; ASNIS, A.Ye.; GUTMAN, L.M.

Welding up cracks in locomotive wheels by the electric slag method. Avtom. svar. 16 no.12:73-78 D '63.
(MIRA 17:1)

1. Poltavskiy parovozoremontnyy zavid (for Gayevoy, Kuzin).
2. Institut elektrosvarki imeni Patona AN UkrSSR (for Asnis, Gutman).

SANDLER, N.I.; DOBRUSKINA, Sh.R.; ZAYKOV, S.T.; FEL'DMAN, Z.N.; ASNIS, A.Ye.; NAZARENKO, A.N.

Converter low-alloys steel with niobium for welded structures. Avtom. svar. 17 no.2:43-48 F '64. (MIRA 17:9)

1. Ukrainskiy institut metallov (for Sandler, Dobruskina, Zaykov, Fel'dman). 2. Institut elektrosvarki im. Ye.O. Patona AN UkrSSR (for Asnis, Nazarenko).

MARCHENKO, A.Ye.; POKHODNYA, I.K.; ASNIS, A.Ye.; BEYNISH, A.M.

Strength of welded joints in 09G2 steel. Avtom. svar. 17 no.7:20-24 Jl '64. (MIRA 17:8)

1. Institut elektrosvarki im. Ye.O. Patona AN UkrSSR.

KULIK, B.F.; ANTONETS, D.P.; ASNIS, A. Ye.; LEBEDEV, B.F.

Experience in making housing for converters with charges of 100 to 130 tons. Avtom. svar. 17 no.6:68-72 Je '64 (MIRA 18:1)

1. Yuzhno-Ural'skiy mashinostroitel'nyy zavod (for Kulik). 2. Zhdanovskiy zavod tyazhelogo mashinostroyeniya (for Antonets). 3. Institut elektrosvariki imeni Ye.O. Patona AN UkrSSR (for Asnis, Lebedev).

ASNIS, A. Ye.; CHEREDNICHOK, V.T.

Strength of T-joints made by resistance flash welding. Avtom. svar. 17 no.6:44-50 Je '64 (MIRA 18:1)

1. Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR.

ASNIS, A.Ye., doktor tekhn. nauk; SHAPOV, N.P., doktor tekhn. nauk; VOLOKHVYANSKAYA, E.S., kand. tekhn. nauk; KRAYCHIK, M.M., kand. tekhn. nauk; MAKSIMOV, V.N., kand. tekhn. nauk; SANDLER, N.I., kand. fiziko-matematicheskikh nauk

Arsenous low-alloy steel for car construction. Vest. TSNII MPS 23 no.5:27-31 '64. (MIRA 17:11)

1. Institut elektrosvarki imeni Patona UkrSSR, Ukrainskiy institut metallov i Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta Ministerstva putey soobshcheniya.

ASNIS, Arkadiy Yefimovich, doktor tekhn. nauk; GUTMAN, Liya Mironovna; SYTNIK, N.K., red.

[Reconditioning track links of crawler tractors] Vosstanovlenie zven'ev gusenichnykh mashin. Kiev, Naukova dumka, 1964. 65 p. (MIRA 18:1)

L 34551-65 EWT(m)/EWP(w)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) Pf-4/
Pu-4 IJP(c) MJW/JD/RM/JG

ACCESSION NR: AP5005851 S/0133/65/000/002/0160/0162

AUTHOR: Sandler, N.I.; Dobruskina, Sh. R.; Zaykov, S.T.; Zadorozhnaya, L.K.; Fel'dman, E.I.; Zhigulin, V.I.; Rubinskiy, P.S.; Asnis, A.Ye.

TITLE: Low-alloy manganese steel with niobium smelted in an oxygen converter

SOURCE: Stal', no. 2, 1965, 160-162

TOPIC TAGS: steel smelting, oxygen converter, low alloy steel, manganese steel, niobium steel, steel rolling, steel mechanical property, K10G2B steel, 09G2 steel, MSt. 3 steel

ABSTRACT: Alloying of K10G2B steel, containing 0.02-0.05% Nb, raises its strength characteristics as compared to 09G2 steel by 10-12 kg/mm^2 (98-117 Mn/m^2), or 20-25%, permitting an appreciable reduction in the weight of the structures. Rolled products made of K10G2B steel are characterized by high tensile strength, plasticity, and impact strength. Another important advantage of the new steel is a higher vibration resistance of the weld joints than that of other low-alloy steels or even MSt. 3 steel. The making of low-alloy manganese steels in oxygen converters is very effective, since their deoxidation and alloying thus requires smaller quantities of expensive ferroalloys containing manganese than in the case of other steelmaking processes. "S.I. Lifshits, P.Ya. Ryzhkov,

Card 1/2

L 34551-65

ACCESSION NR: AP5005851

and I.G. Goryuchka (Petrovskiy plant), B.V. Nikiforov and V. Ye. Koval' (Ukrainian metals scientific research institute), and A.K. Nazarenko (Electric welding institute) also took part in the work." Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: Ukrainskiy n.-i. institut metallov (Ukrai...an metals scientific research institute); Zavod im. Petrovskogo (Petrovskiy plant); Institut elektrosvarki im. Ye. O. Patona AN UkrSSR (Electric Welding Institute, AN UkrSSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 001 OTHER: 007

Card 2/2

L 60254-65 EWP(k)/EWA(c)/EWT(m)/EWP(i)/EWP(b)/T/EWA(d)/EWP(w)/EWP(v)/EWP(t) Pf-4/Pa-4 IJP(c) JD/HM/GS

ACCESSION NR: AT5017704 UR/0000/65/000/000/0038/0050

42
37
B+1

AUTHOR: Asnis, A. Ye.

TITLE: Certain questions on the selection of steels and aluminum alloys for welded structures

27

SOURCE: AN UkrSSR. Institut elektrosvarki. Proyektirovaniye svarnykh konstruktsii (Design of welded structures). Kiev, Naukova dumka, 1965, 38-50

TOPIC TAGS: welding technology, steel, construction material, aluminum alloy, heat treatment, material utilization, metal aging, metal brittleness, metal cladding, metal fatigue, metal hardness

ABSTRACT: The considerations involved in selecting steels and aluminum alloys for welded structures are discussed. The load character of the members and the temperatures at which they must operate were the variables considered, and the conclusions were drawn on the basis of the weldability of the material, its strength, yield point, fatigue level, impact resistance, brittleness, etc. Welding characteristics of low carbon steels, converter steels, and heat treated steels in welded structures are discussed. It is stated that increased strength can be achieved either by developing new steels (Baynit) or by advancing welding

Card 1/2

L 60254-65

ACCESSION NR: AT5017704

3

technology for the high-strength carbon steels. Substitution of plated or double layer steel for expensive alloy steels is recommended when corrosion considerations are of importance. Alloy steel with manganese, chrome, and other elements replacing nickel are being developed and should be studied. Consideration should be given to designing combination welded structures in which the metal used for each member is determined by its load bearing requirements. The choice of aluminum alloys is dictated by the balance between their advantages (high specific strength, good mechanical properties, high corrosion resistance) and their disadvantages (high cost, low elasticity, high coefficient of thermal expansion). A comparison between welded T joints of aluminum alloy, low carbon steel, and low alloy steel for their impact strength is presented, and the use of these materials in various structures is discussed. Orig. art. has: 3 tables and 4 figures.

ASSOCIATION: Institut elektrosvarki im Ye. O. Patona, AN UkrSSR (Institute of Electric Welding, AN UkrSSR)

SUBMITTED: 13Jan65 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 000 OTHER: 000

Card 2/2

PATON, B.Ye., akademik, otv. red.; ASNIS, A.Ye., doktor tekhn. nauk, red.; KAZIMIROV, A.A., kand. tekhn. nauk, red.; KASATKIN, B.S., doktor tekhn. nauk, red.; RAYEVSKIY, G.V., doktor tekhn. nauk, red.; TRUFYAKOV, V.I., kand. tekhn. nauk, red.; SHEVERNITSKIY, V.V., kand. tekhn. nauk red.[deceased]; GILELAKH, V.I., red.

[Design of welded structures; reports] Proektirovanie svarnykh konstruktsii; doklady. Kiev, Naukova dumka, 1965. 426 p. (MIRA 18:6)

1. Vsesoyuznaya konferentsiya po proyektirovaniyu svarnykh konstruktsii, Kiev, 1963.

SANDLER, N.I.; DOBRUSKINA, Sh.R.; ZAYKOV, S.T.; ZADOROZHNAYA, L.K.; FEL'DMAN, L.I.; ZHIGULIN, V.I.; RUBINSKIY, P.S.; ASNIS, A.Ye.

Low alloy manganese steel with niobium smelted in an oxygen-blown converter. Stal' 25 no.2:160-162 F '65. (MIRA 18:3)

1. Ukrainskiy nauchno-issledovatel'skiy institut metallov; zavod im. Petrovskogo i Institut elektrosvarki im. Ye.O. Patona AN UkrSSR.

ASNIS, A.Ye.; IVASHCHENKO, G.A.

Deformation during mechanized welding with an alloyed wire.
Avtom. svar. 18 no.4:73 Ap '65. (MIRA 18:6)

23283
S/135/61/000/007/006/012
A006/A106

1.2300 also 1573

AUTHORS: Asnis, Ye. A., Zamkov, V. N., Engineers

TITLE: Peculiarities of welding copper on chrome-nickel steels

PERIODICAL: Svarochnoye proizvodstvo, no. 7, 1961, 20-22

TEXT: To replace brass employed for devices, operating at low temperatures, by 18-8 type steel, the authors investigated welding and soldering of copper parts on stainless steel components. The study was carried out at the welding laboratory of the Kiyev "Bol'shevik" Plant with the participation of engineer G. K. Gayduchenko. Grade M2 copper was welded on 1Kh18N9T (1Kh18N9T) austenite steel, MCT. 3 (MSt. 3) ferrite-perlite steel and double-phase high-alloy chrome-nickel steel containing over 30% ferrite. Building up was performed with the use of a 50 mm wide and 0.8 mm thick strip under AN-60 (AN-60) flux. The bi-metal specimens (copper + 1Kh18N9T steel) were subjected to bending tests at +20 to -70 °C. Preliminary tests showed that copper in molten state can penetrate in the adjacent metal. The degree of penetration depends on the metal structure and stresses arising during the building-up process. The effect of these factors was investigated on microsections of specimens, built-up with cooling, pre-heating,

Card 1/3

Peculiarities of welding copper ...

different linear energy and different thickness. The effect of cooling and preheating on the proneness of austenite steel built-up with copper to hot crack formation was studied on 10 mm thick specimens. In the former case the specimens were cooled with running water at 12°C; in the latter case they were heated to 800°C. In both cases microcracks were not revealed in the built-up metal. The effect of linear energy was investigated with the use of 4 mm diameter M2 wire and a 16 mm thick 1Kh18N9T steel plate. Building up was performed at 12,350, 10,550, 8,450, 8,000 and 6,920 cal/cm. It was found that with reduced linear energy the proneness of the built-up metal to hot crack formation decreased. To determine the effect of the base metal structure on the penetration of copper, 10 mm thick MSt.3 steel and high-alloy chrome-nickel steel specimens were built-up. Macrocracks were not revealed. The effect of thickness was studied on 300 x 100 1Kh18N9T specimens built up with a copper strip under AN-60 flux, at 40-45 v arc voltage, 475-550 amps current and 12 m/h welding speed. In all specimens, up to 12 mm thick, microcracks were revealed, filled with copper, which run from the fusion zone of copper with steel over the whole section of the specimen. Mechanical tests were performed to determine the cohesion strength of the built up copper layer with the base metal. Sections of plates of different thickness and steel grades, built-up under various conditions, were microinvesti-

Peculiarities of welding copper ...

gated in reagents of 4 g $CuSO_4$, 20 ml HCl and 20 ml water. The tests yielded the following results: The penetration of copper into the steel when welding copper on austenite 1Kh18N9T steel decreased with lower linear energy and greater thickness of the metal. The presence of a second phase in the steel reduces copper penetration; at a ferrite content of over 30% in austenite-ferrite steel, copper penetration is fully eliminated. Preheating of 1Kh18N9T steel to 800°C and continuous water cooling during building-up process considerably reduces penetration of copper into steel, due to the formation of a second phase. Bimetal obtained by building up copper on 1Kh18N9T steel of 32 mm thickness, shows satisfactory mechanical properties and deformation capacities. There are 4 figures and 5 Soviet-bloc references.

ASSOCIATION: Kiyevskiy zavod "Bol'shevik" (Kiyev "Bol'shevik" Plant)

Card 3/3

ASNIS, Ye.A.; ZAMKOV, V.N.

Welding thin-sheet stainless steel in an atmosphere of carbon dioxide. Avtom. svar. 14 no.10:49-51 O '61. (MIRA 14:9)

1. Kiyevskiy zavod "Bok'shevik".
(Steel, Stainless--Welding)
(Sheet steel--Welding)

ASNIS, Ye.A., inzh.; IL'YENKO, N.P., inzh.

Application of the UONII-13 electrodes for welding different types of steel. Khim.mashinostr. no.2:38-39 Mr-Ap '63. (MIRA 16:4)
(Steel—Welding)

ASNIS, Ye.A., inzh.

Semiautomatic welding of 09G2DT(M) steel in carbon dioxide.
Svar. proizv. no.11:23-25 N'63. (MIRA 17:5)

1. Kiyevskiy zavod "Bol'shevik".

L 10298-63 EWP(q)/EWT(m)/BDS--
AFFTC/ASD--JD/HW-2
ACCESSION NR: AP3001121 S/0125/63/000/007/0086/0089

AUTHOR: Asnis, Ye. A.; Prokhorenko, V. M.

TITLE: Peculiarities of welding copper to type 18-8 chromium-nickel austenitic steels

SOURCE: Avtomaticheskaya svarka, no. 7, 1963, 86-89

TOPIC TAGS: 18-8 steel, Kh18N10T steel, OKh21N5T steel, copper-steel welding

ABSTRACT: Formerly it was considered impossible to obtain a reliable weld between copper and stainless steel by electric-arc welding. The purpose of the investigation was to develop techniques for manual arc welding of M3 copper to Kh18N10T chromium-nickel and OKh21N5T low-nickel steels. Welding experiments were carried out on 300 x 100 x 10 and 300 x 100 x 5-mm plates; the experiments were interesting for chemical industries. Eight types of electrodes were tested. Attempts to use austenitic electrodes resulted in cracked welds. "Komsomolets-100" copper electrodes and "Progress-50" nickel electrodes caused no cracks but yielded porous welds. The best results in terms of mechanical properties of the weld were obtained from the 07Kh25N13 austenitic electrode with ENTU-3 coating. The copper edge to be welded was nickel-faced. No crack or pore was observed in the weld and the weld-affected zone. Orig. art. has: 5 figures and 1 table.

Card 1/2

L 9681-66 EWT(m)/EWP(t)/EWP(b) JD/WB

ACC NR: AP5027597 SUB CODE: UR/0135/65/000/011/0008/0009

AUTHOR: Asnis, Ye. A. (Engineer); Prokhorenko, V. M. (Engineer); Shvindlerman, L. S. (Engineer)

ORG: [Asnis, Prokhorenko] Kiev Bol'shevik Plant (Kiyevskiy zavod "Bol'shevik"); [Shvindlerman] PKTI, Kiev

TITLE: Mechanism of crack formation during the welding and buildup of copper onto steel

SOURCE: Svarochnoye proizvodstvo, no. 11, 1965, 8-9

TOPIC TAGS: molten copper, steel, crack propagation, austenitic steel, ferritic steel, heat stress / 08Kh17T monophase ferrite steel

ABSTRACT: The interaction of molten copper with steel, particularly during buildup and welding, results in the formation of copper-filled cracks. This is due to the cleavage effect of molten copper as well as to the special energy state of the melt at the grain boundaries and the consequent, enhanced diffusion of liquid-phase atoms through the crystal lattice of solid metal. A recent study (Asnis, Ye. A., Zamkov, V. N. Svarochnoye proizvodstvo, 1961, no. 7) revealed that the presence of a ferrite phase in steel reduces, or -- if the ferrite content exceeds 30% -- eliminates the penetration of steel by copper in such cases. Accordingly, the authors present some

Card 1/3 UDC: 621.791.92.011:669.35:669.15-194

conclusions based on an experimental investigation of the mechanism of action of ferrite on crack formation, as well as of the general causes of crack formation, following the examination of microsections taken from welded specimens. It was found that the buildup of copper onto ØKh17T monophase ferrite steel did not result in any cracks whatsoever. Hence the hypothesis is offered that the cracks forming during the buildup of copper onto steel are produced by the combined action of the penetration of molten copper into the microfissures arising during the crystallization of the matrix phase -- steel (the Rebinder effect) [2] -- and the attendant thermal tensile stresses. The Rebinder effect (cf. P. A. Rebinder. Fiziko-khimicheskiye issledovaniya protsessov deformatsii tverdykh tel. Yubileynyy sbornik, posvyashchennyy 30-letiyu Velikoy Oktyabr'skoy sotsialisticheskoy revolyutsii. Izd. AN SSSR, 1947) is contingent on the penetration of molten copper into the capillary microfissures and hence also on the wetting of the capillary walls. Of the two phases present in steels, the γ-phase (austenite) is wetted by molten copper, but the α-phase (ferrite) is not. Hence, it may be assumed that the failure of cracks to propagate through the ferrite phase is due to the nonwettability of this phase with respect to copper. Further, to assess the effect of the thermal stress factor on crack formation, copper was welded onto 10 mm specimens of St.3 steel preheated to 900-950°C (above the temperature of austenite formation). In this case, the preheating reduced to a minimum the thermal tensile stresses and the formation of austenite provided favorable conditions for the penetration of copper into the microfissures. Yet no cracks were detected following the buildup. This as well as other, similar experiments which produced the same results,

L 9681-66
ACC NR: AP5027597

indicates that the Rebinder effect alone is not enough to cause crack formation; the presence of thermal tensile stresses is also a prerequisite. Further, it was established that the cleavage effect of molten copper on steel, as calculated in terms of capillary pressure, is ~2.5 kg/mm^2. Orig. art. has: 4 figures, 1 formula.

SUB CODE: 11,13/ SUBM DATE: none/ ORIG REF: 006/ OTH REF: 001

Card 3/3

ACC NR: AP5027597 SUB CODE: UR/0135/65/000/011/0008/0009

AUTHOR: Asnis, Ye. A. (Engineer); Prokhorenko, V. M. (Engineer); Shvindlerman, L. S. (Engineer)

ORG: [Asnis, Prokhorenko] Kiev Bol'shevik Plant (Kiyevskiy zavod "Bol'shevik"); [Shvindlerman] PKTI, Kiev

TITLE: Mechanism of crack formation during the welding and buildup of copper onto steel

SOURCE: Svarochnoye proizvodstvo, no. 11, 1965, 8-9

TOPIC TAGS: molten copper, steel, crack propagation, austenitic steel, ferritic steel, heat stress / ØKh17T monophase ferrite steel

ABSTRACT: The interaction of molten copper with steel, particularly during buildup and welding, results in the formation of copper-filled cracks. This is due to the cleavage effect of molten copper as well as to the special energy state of the melt at the grain boundaries and the consequent, enhanced diffusion of liquid-phase atoms through the crystal lattice of solid metal. A recent study (Asnis, Ye. A., Zamkov, V. N. Svarochnoye proizvodstvo, 1961, no. 7) revealed that the presence of a ferrite phase in steel reduces, or -- if the ferrite content exceeds 30% -- eliminates the penetration of steel by copper in such cases. Accordingly, the authors present some

Card 1/3

UDC: 621.791.92.011:669.35:669.15-194

indicates that the Rebinder effect alone is not enough to cause crack formation; the presence of thermal tensile stresses is also a prerequisite. Further, it was established that the cleavage effect of molten copper on steel, as calculated in terms of capillary pressure, is ~2.5 kg/mm^2. Orig. art. has: 4 figures, 1 formula.

SUB CODE: 11,13/ SUBM DATE: none/ ORIG REF: 006/ OTH REF: 001

AUTHORS: Andrianov, K. A., Corresponding Member of the AS USSR, Zhdanov, A. A., Asnovich, L. Z. 20-118-6-21/43

TITLE: On the Synthesis of Infusible but Soluble Polymers (O sinteze neplavkikh, no rastvorimykh polimerov)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 118, Nr 6, pp. 1124-1127 (USSR).

ABSTRACT: The fusibility and solubility of polymers in organic solvents are considered to be dependent on the molecular structure of the chains. Polymers with a linear structure are soluble and meltable by heating, regardless of their molecular weight. The branching of the chain, viz. the formation of laced (sshityye) structures and spatial structures makes the polymer lose these properties. This dependence concerns all polymers. The authors tested the synthesis of polymers which were readily soluble in non- or slightly-polar solvents but which did not melt when heated. The results obtained by thorough investigations show that no polymers with the aforesaid properties can be obtained with the production of cyclic poly-organo-siloxanes. A general composition of the polymers $(C_6H_5SiO_{1,5})_x$ which cor=

Card 1/ 4

changed. The solubility in acetone is preserved also with heating at 200°C for 4 hours. With an action of heat of 300°C for 15 minutes, it is soluble in 85%. In the case of a longer lasting heating at 200°C and with a 15 minutes lasting heating at 400 and 500°C, the solubility gets completely lost. The constants and the chemical analysis (table 1) are given. An empirical formula for a term of the concerned polymer is given. A spatial structure of the polymeric molecule seems impossible, whereas such a term is a constituent of a complex cyclic or volumetric-polymeric molecule. Polyaluminum-ethylsiloxane was synthesized analogously. With equal properties as polyaluminum-phenylsiloxane it does not melt with heating (figure 1). The solubility of the former in various solvents at various temperatures is shown in table 1. Polyaluminum-ethylsiloxane loses its solubility more rapidly. An experimental part with usual data follows.

There are 1 figure, 1 table, and 2 references.

ANDRIANOV, K.A.; SLONIMSKIY, G.L.; DIKAREVA, T.A.; ASNOVICH, E.Z.

Solubility and thermomechanical properties of polyaluminum organic siloxanes. Vysokom.soed. 1 no.2:244-247 F '59.
(MIRA 12:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i Vsesoyuznyy elektrotekhnicheskiy institut im. V.I.Lenina.
(Plasticizers) (Siloxanes) (Aluminum orgnaic compounds)

ANDRIANOV, K.A.; ASHOVICH, E.Z.

Titanium organosiloxane polymers. Vysokom.soed. 1 no.5:743-747 My '59. (MIRA 12:10)

1. Vsesoyuznyy elektrotekhnicheskiy institut im. V.I.Lenina. (Siloxanes) (Titanium organic compounds)

Asnovich, E. Z.

S/190/60/002/01/17/021
B004/B061

5.3700

82085

AUTHORS: Andrianov, K. A., Asnovich, E. Z.

TITLE: Polytitanomethylsiloxanes and Polytitanoethylsiloxanes

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 1, pp. 136-140

TEXT: For the production of polytitanoalkylsiloxanes, the authors used the following reactions: $RSiCl_3 + 3\,H_2O \longrightarrow RSi(OH)_3 + HCl$; $RSi(OH)_3 \xrightarrow{-1.5H_2O} RSiO_{1.5}$; $4RSiO_{1.5} + 4NaOH + TiCl_4 \xrightarrow{2\,H_2O} 4NaCl + [RSi(OH)_2O]_4Ti$; $n[RSi(OH)_2O]_4Ti \longrightarrow nH_2O + \{[RSi(O)O]_4Ti\}_n$. R = CH_3 (I), C_2H_5 (II). The polymers were bright yellow, hard, brittle, glass-like substances, easily soluble in organic solvents. They did not melt when heated to 500°C. The average degree of polymerization was 22. The substances lost their solubility by heating (Table). They had no

Card 1/3

Polytitanomethylsiloxanes and Polytitanoethylsiloxanes

S/190/60/002/01/17/021
B004/B061
82085

elasticity- or plastic ranges (Fig.), but plasticizing of (I) with pentachlorodiphenyl (50%) at 20°C, and plasticizing of (II) with a hydrocarbon (50%) boiling at 320°C led to a flow at 25°C. Fig. 2 shows the infrared spectra of I and II and of polytitanophenylsiloxane, taken by N. P. Gashnikova. A linear-cyclic structure of the polymers was assumed from these data. The synthesis took place from methyltrichlorosilane (70.9% Cl), ethyltrichlorosilane (65% Cl), caustic soda "pro analysi" ГОСТ 4328-48 (GOST 4328-48), and $TiCl_4$ "pure" TU 2553-31 (TU 2553-31). The content of hydroxyl groups was determined according to Tserevitinov-Terent'yev. The authors thanked I. I. Tverdokhlebova for the determinations of molecular weight carried out in S. E. Rafikov's laboratory. There are 2 figures, 1 table, and 7 references: 5 Soviet and 2 US.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Elemental-organic Compounds of the AS USSR). Vsesoyuznyy elektrotekhnicheskiy institut im. V. I. Lenina (All-Union Electrotechnical Institute imeni V. I. Lenin)

Card 2/3

81555
S/062/60/000/05/04/008
B004/B066

5.3700C

AUTHORS: Andrianov, K. A., Gashnikova, N. P., Asnovich, E. Z.

TITLE: Investigation of the Infrared Absorption Spectra of Polyaluminum Organosiloxanes and Polytitanium Organosiloxanes

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 5, pp. 857-862

TEXT: After a short survey of the data in publications dealing with the infrared spectra of various organic and inorganic silicon and aluminum compounds (Refs. 1-13) the authors report on their own investigations. The vibration spectra of the following compounds were investigated: 1) tris-(trimethyl-siloxy)-aluminum $Al[OSi(CH_3)_3]_3$, melting point 98°-100°C, soluble in benzene, toluene and CCl_4, prepared according to Ref. 14; 2) tris-(triethyl-siloxy)-aluminum, melting point 327°C, solubility like 1), prepared like 1); 3) tetrakis-(triethyl-siloxy)-titanium $Ti[OSi(C_2H_5)_3]_4$, data in Ref. 14; 4) Polymethyl siloxane

Card 1/4

Investigation of the Infrared Absorption Spectra of Polyaluminum Organosiloxanes and Polytitanium Organosiloxanes

S/062/60/000/05/04/008
B004/B066

Figs. 1-3. Fig. 4 shows the dependence of the absorption on the Si/Al ratio for compounds 8 and 9. The frequencies characteristic of the vibration of the Al-O bond in the group Al-O-Si of the compounds 7,8,9 are in the range 1080-1050 cm^{-1}. The frequencies characteristic of the vibration of the Ti-O bond in the group Ti-O-Si of the compounds 10,11,12 lie in the range 922-914 cm^{-1}. The compounds investigated have a linear-cyclic structure of the principal chain of the molecule, in which prevalently tetrameric siloxane- and organometallic siloxane rings are combined with one another by oxygen atoms. The compounds 1,2, and 3 were synthesized by A. A. Kazakova. There are 4 figures, 1 table, and 20 references: 7 Soviet, 1 British, 1 Swiss, and 11 American.

AAOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences, USSR). Vsesoyuznyy elektrotekhnicheskiy institut im. V. I. Lenina (All-Union Institute of Electrical Engineering imeni V. I. Lenin)

85542

S/026/60/000/009/007/010
A166/A029

5.3700 2209,1273,2109

AUTHORS: Andrianov, K.A., Corresponding Member; Petrashko, A.I.; Asnovich, E.Z.

TITLE: Elementcorganic Polymers

PERIODICAL: Priroda, 1960, Vol 49 No. 9, pp. 27 - 32

TEXT: The authors review some of the modern elementoorganic polymers and the uses to which they can be put. The Soviet ГКЖ-94 (GKZh-94) silicoorganic fluid could be used to coat transporter belts in bakeries to prevent the bread from sticking to the belt during the baking process. Silicoorganic liquids can be used to impart a super-thin hydrophobic coating, making the treated material waterproof but yet permeable to air. Fabrics so treated do not stick together and the method is therefore good for artificial fur. Brick or rocfing tiles treated with a 1 - 2% solution of GKZh-11 silicoorganic polymer do not absorb water. Silicoorganic polymers also give thermostable coatings for molds in precision casting and make excellent insulating material at high and low termperatures and for submarine cables and electrical equipment. Polyorganometallosiloxanes with widely varying properties have been synthesized in the USSR, including polyorgancalumosiloxanes

Card 1/ 3

S/02[illegible]/60/000/009/007/010
A166/A029

Elementoorganic Polymers

capable of withstanding temperatures of up to 500°C. Some organoalumosiloxanes dissolve readily in water and are similar in structure to alkite and anorthoclase. They have good adhesion to glass, metals, asbestos and fabrics and can therefore be used as hydrophobizers for fabrics, paper, leather and building material. Polyorganotitanosiloxanes are also used as hydrophobizers. Non-friable coatings can be obtained from a 50/50 mixture of polyorganoborosiloxane and polymethylsiloxane. The introduction of boric acid, boric ethers or barium anhydride to polydimethylsiloxane rubbers gives them greater resilience to sudden stress. Polymers can now be synthesized with a basic siloxane chain containing periodic inclusions of nickel, cobalt, chromium or tin atoms. Chemists have developed high-molecular compounds with inorganic molecule chains framed by organic or organosiloxane groups. Silicon, aluminum, titanium boron, lead, tin or phosphorus are commonly used for the main chains. Alukons (polymers with chains of aluminum and oxygen) are soluble in organic solvents and soften at temperatures ranging from 50 to 170°C. Polyorganolumoxanes, used as additives for varnishes and paints, accelerate drying, improve mechanical strength and chemical stability and retard oxidation. They also have good hydrophobizing properties. Polyorganotitanoxanes are soluble in organic solvents, have good thermostable and waterproofing properties and adhere readily to metals and glass. High thermostability (up to 700°C) and

Card 2/3

Elementoorganic Polymers

S/026/60/000/009/007/010
A166/A029

excellent waterproofing are achieved with a 2-layer coating of butylpolytitanate, where the bottom layer contains zinc dust and the upper layer aluminum powder. The drawback is that they are susceptible to the action of salt water. Organic phosphorus polymers are used to fireproof fabrics. Such fabrics do not crumple and are resistant to mold. Organic phosphorus polymers are also used for hydraulic fluids, lubricants, varnishes and anti-foamants. A promising, though as yet unexplored, field of research is that of blocks of various polyorganosiloxane and elementoorganic polymers grafted together or to organic polymers. There are 7 photos.

ASSOCIATION: AN, SSSR

Card 3/3

ANDRIANOV, Kuz'ma Andrianovich; ASNOVICH, Emmanuil Zinov'yevich; PETRASHKO, Aleksey Ivanovich; NEKHLYUDOVA, A.S., red.; SAVCHENKO, Ye.V., tekhn. red.

[Chemistry of large molecules] Khimiia bol'shikh molekul. Moskva, Izd-vo "Znanie," 1961. 39 p. (Narodnyi universitet kul'tury: Estestvennonauchnyy fakul'tet, no.18) (MIRA 15:1)

1. Chlen-korrespondent AN SSSR (for Andrianov).
(POLYMERS)

S/081/62/000/020/029/040
B160/B144

AUTHORS: Asnovich, E. Z., Gashnikov, E. G., Petrashko, A. I.

TITLE: Organosilicon polymers

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1962, 500, abstract 20P49 (Vestn. tekhn. i ekon. inform. N.-i. in-t tekhn-ekon. issled. Gos. kom-ta Sov. Min. SSSR po khimii, 1961, no. 12, 28 - 36)

TEXT: Particular structural points, physicochemical properties and fields of application for organosilicon polymers (resins, varnishes, heat-resistant enamels, liquids and rubbers) are discussed. 13 references.
[Abstracter's note: Complete translation.]

Card 1/1

33380
S/190/62/004/002/009/021
B110/B101

15.8150 1372

AUTHORS: Asnovich, E. Z., Andrianov, K. A.

TITLE: Polyorganotin siloxanes

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 2, 1962, 216 - 220

TEXT: Polyorgano siloxanes with principal chains of Si, O, and Sn atoms have been investigated. The Si atoms are surrounded by methyl, ethyl, and phenyl groups

$$4RSi(OH)_2ONa + SnCl_4 \rightarrow [RSi(OH)_2O]_4Sn + 4NaCl;$$

$$n[RSi(OH)_2O]_4Sn \rightarrow \{[RSiO]_4Sn\}_n + nH_2O,$$

where R = CH_3, C_2H_5, C_6H_5.

By changing the ratio of reagents one obtains polymers with different ratios of Si to Sn atoms: polytinmethyl siloxanes (I) from 4:1 to 17:1, polytinethyl siloxanes (II) from 1.25:1 to 19.5:1, and polytinphenyl siloxanes (III) from 1.17:1 to 17.4:1. I, II, and III with the ratios Si:Sn = 1.25

Card 1/3

33380
S/190/62/004/002/009/021
B110/B101

Polyorganotin siloxanes..

and 3.98 are glassy, colorless, transparent, solid, and brittle, those with the ratios 7.75, 15.5, and 19.5 are viscous, bright-yellow resins at room temperature. I are stable in solution, are no longer soluble when separated at 20 - 22°C from the solution, and do not melt. II and III keep their solubility in organics even after separation. With ratios Si:Sn $\geq$ 4, I and II are well soluble in organic solvents, with Si:Sn $\sim$1 only in acetone. After 2 hr heating (200°C), II (Si:Sn = 4) loses its solubility. III (Si:Sn = 4) becomes unsoluble (benzene, acetone) after heating at 200°C, III (Si:Sn = 17) loses its solubility much more slowly. II and III become unsoluble with increasing Sn content. The kinematic viscosities of 5, 10, and 30% solutions of II and III in toluene with different Si:Sn ratios were rather similar. The time of polymerization increases with increasing Sn content (Si:Sn = 4 $\longrightarrow$ 8, time 1 $\longrightarrow$ 30). The polymerization time of III is much shorter than that of II. For III, it grows strongly for polymers with Si:Sn $\geq$ 13.7 (Si:Sn = 8.5: 35 sec; Si:Sn = 17.4: 10 min). The thermomechanical properties of II and III depend on the Sn content. III (Si:Sn = 4) did not flow at 400°C after plasticizing with 20% pentachloro diphenyl: at 80 - 90°C. III (Si:Sn = 14) showed flowing at 130 - 140°C. The stiffness of the polymer molecule increases with rising Sn content of III. II (Si:Sn = 4) has a flowing point of $\sim$80°C, with Si:Sn = 7.75:

Card 2/3

33380

Polyorganotin siloxanes

S/190/62/004/002/009/021
B110/B101

30°C. II (Si:Sn = 4) melts at 80°C, II did not flow at 400°C. II (Si:Sn = 15.5) melts at 30°C, II (Si:Sn = 14) at 135°C. This suggests a stiffer structure of III. There are 1 figure, 5 tables, and 5 Soviet references.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR
(Institute of Elemental Organic Compounds AS USSR).
Vsesoyuznyy elektrotekhnicheskiy institut im V. I. Lenina
(All-Union Electrotechnical Institute imeni V. I. Lenin)

SUBMITTED: February 8, 1961

X

Card 3/3

S/064/63/000/001/001/007
B101/B186

AUTHORS: Andrianov, K. A., Petrashko, A. I., Asnovich, E. Z.

TITLE: Polymers with inorganic molecular chains

PERIODICAL: Khimicheskaya promyshlennost', no. 1, 1963, 7 - 18

TEXT: This is a review of publications on the synthesis of polyorganosilicon compounds, polyorganoaluminosilicon, polyorganotitanosilicon, polyorganostannosilicon, polyorganoferrosilicon compounds, and phosphorus-containing organosilicon compounds. It covers the period 1948 - 1962 but mainly includes Soviet publications issued in 1961 - 1962. The following problems were mentioned as being important: Production of films and fibers from organosilicon compounds, development of the synthesis of block and graft copolymers of organosilicon compounds, and studies on the possibility of producing organosilicon polymers with regular structures. There are 58 references.

Card 1/1

ACCESSION NR: AT4033990 S/0000/63/000/000/0081/0086

AUTHOR: Rodionov, A. N.; Asnovich, E. Z.; Shigorin, D. N.; Andrianov, K. A.

TITLE: Infrared absorption spectra of some metallic silicones

SOURCE: Geterotsepnyye vysokomolekulyarnyye soyedineniya (Heterochain macromolecular compounds); sbornik statey. Moscow, Izd-vo "Nauka," 1963, 81-86

TOPIC TAGS: polymer, silicone, siloxane, polyorganosiloxane, metallic silicone, aluminum containing silicone, titanium containing silicone, tin containing silicone, silicone spectral analysis, polyphenyl siloxane, polymethyl siloxane, polyethyl siloxane

ABSTRACT: Absorption spectra of polymethyl-, polyethyl- or polyphenyl siloxanes containing Al, Ti or Sn in various ratios to Si were analyzed for the range 400-1100 cm^{-1}. Bands corresponding to Si-O valence fluctuation in the Si-O-Sn group were identified at 900-980 cm^{-1}, those for Sn-O at 530-580 cm^{-1}. Band intensities in these spectral regions varied for all polymers in relation to the metal/Si ratio, indicating preservation of absorption frequencies of the Si-O-metal group during monomer to polymer conversion. Location of absorption bands for such group varied little from one metal to another. Orig. art. has: 3 graphs, 2 tables.

Card: 1/2

ACCESSION NR: AT4033990

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Institute of Physical Chemistry); Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Metalloorganic Compounds AN SSSR)

SUBMITTED: 06Jul62 DATE ACQ: 30Apr64 ENCL: 00

SUB CODE: OC NO REF SOV: 004 OTHER: 003

Card 2/2

ANDRIANOV, K.A.; ASNOVICH, E.Z.

Polynaphthenoalumophenylsiloxanes. Trudy VEI 71:7-12 '63.
(MIRA 17:8)

ANDRIANOV, K.A.; SHUGAL, Ya.L.; ASNOVICH, E.Z.

Glass textolite based on phenol-formaldehyde resins modified by polyphenylaluminosiloxanes. Plast. massy no.2:44-48 '64. (MIRA 17:8)

L 27894-65 EWT(m)/EPA(s)-2/EPF(c)/T/EWP(j)/EPA(w)-2/EPR/EWA(c) Pc-4/Pab-10/
Pr-4/Ps-4/Pt-10 RPL WW/RM

ACCESSION NR: AP4012192 S/0191/64/000/002/0044/0048

AUTHORS: Andrianov, K.A.; Shugal, Ya.L.; Asnovich, E.Z.

TITLE: Glass textolite based on phenol-formadehyde-resin modified with polyalumophenylsiloxane

SOURCE: Plasticheskiye massy*, no. 2, 1964, 44-48

TOPIC TAGS: glass textolite, fiberglass, pheno formaldehyde fiberglass, phenol formaldehyde polyalumophenylsiloxane fiberglass, phenol formaldehyde polyalumophenylsiloxane resin property, fiberglass property, water resistance, tensile strength, hardness, electric resistance, electric resistivity, heat stability, impact strength

ABSTRACT: Glass textolite (fiberglass) with improved electric insulating properties and high flexural and tensile strengths can be produced from phenol-formaldehyde resin modified with 0.5-10% polyalumophenylsiloxane. Incorporation of this siloxane improves adhesion of the binder to the filler, improves water-resistance tensile strength, hardness and electric insulating properties of the

Card 1/2

L 27894-65

ACCESSION NR: AP4012192

4

fiberglass. The specific impact strength of fiberglass prepared with different amounts of the siloxane exceeds 50kgs.cm./cm^2. Such fiberglass is thermally stable above 250C. Additional heat treatment (95-105C for 24 hours) of the glass textolite, prepared with 5-10% of the siloxane, increased the specific resistivity and the electric resistance of the fiberglass. "M. S. Gel'bras removed the lubricant." "S.I. Smirnova, B.M. Kil'berg and T.I. Il'ina participated in the work in the plant." Orig. art. has: 5 tables, 2 figures and 1 formula.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: MT, OC

NR REF SOV: 000

OTHER: 000

Card 2/2

L 56668-65 EWT(m)/HPF(c)/EWP(j)/T Pc-4/Pr-4 RM
ACCESSION NR: AP5017848 UR/0296/65/000/011/0080/0080
678.84+678.643

AUTHOR: Prutkov, L. M.; Andrianov, K. A.; Polikanin, N. A.; Asnovich, E. Z.

TITLE: A method for producing molding compounds. Class 39, No. 171577

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 11, 1965, 80

TOPIC TAGS: molding material, plastic, graft copolymer

ABSTRACT: This Author's Certificate introduces a method for producing molding compounds based on a filler and binders--synthetic resins. The useful properties of the molding compounds are improved by using binders consisting of graft copolymers of epoxy resin and a polyorganosiloxane which contains a secondary amino group in the side chain.

ASSOCIATION: none

SUBMITTED: 24Mar62 ENCL: 00 SUB CODE: MT,OD

NO REF SOV: 000 OTHER: 000

Card 1/1

L 37217-66 EWP(j)/EWT(m) RM/JWD

ACC NR: AP6018124 (A) SOURCE CODE: UR/0191/66/000/006/0024/0026

AUTHOR: Akutin, M. S.; Osipchik, V. S.; Asnovich, E. Z. 40 B

ORG: none

TITLE: Investigation of organosilicon oligomer curing processes

SOURCE: Plasticheskiye massy, no. 6, 1966, 24-26

TOPIC TAGS: siloxane, organosilicon compound, organoaluminum compound, oligomer, polymer structure, thermal analysis, curing agent

ABSTRACT: The effect of polyaluminoorganosiloxanes on the curing of organosilicon oligomers was studied by differential thermal analyses. The effects of 1-10%, on weight of the oligomer, of polyaluminophenyl siloxane (A) or polyaluminoethylsiloxane (B) on the structurization of polymethylsiloxane (I) and polymethylphenylsiloxane (II) oligomers were examined. Thermograms showed the phenyl radical in II shifted temperature effects to higher temperatures in comparison to I three-dimensional polymers were formed in the 260 and 190°C ranges, respectively. Addition of A to I caused little shift in temperature, but accelerated curing, while addition of B lowered hardening

Card 1/2

UDC: 678.84:678.028.294

L 37217-66

ACC NR: AP6018124

temperature to 132-160°C. Addition of A or B to II lowered the curing temperatures to 196 and 170°C, respectively. The action of A and B is attributed to the formation of coordination bonds between aluminum and the unshared electron pair of the oxygen in the polyorganosiloxane, causing a shift in electrons, weakening of the Si-O-Si bond and rupture of the rings. The ethyl radical in the polyaluminoorganosiloxanes has a stronger effect on cross-linking than the phenyl radical. Orig. art. has: 6 figures.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 001

Card 2/2

L 01799-67 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6030641 (AN) SOURCE CODE: UR/0413/66/000/016/0172/0172 16 B

INVENTOR: Andrianov, Kh. A.; Yukina, L. N.; Petrashko, A. I.; Asnovich, E. Z.

ORG: none

TITLE: Method of setting epoxy-containing resins. Class 39, No. 114185

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 172

TOPIC TAGS: resin, epoxy resin

ABSTRACT: An Author Certificate has been issued for a method of setting epoxy-containing resins by combining them with synthetic resins. To obtain a product with increased heat resistance, polyaluminoorganosiloxane resins are used in quantities of 5—60% as the synthetic resins. [Translation] [NT]

SUB CODE: 11/ SUBM DATE: 27Jan58/

Card 1/1 fdk